

## RCRA FACILITY FACT SHEET

**Chevron Environmental Management Company (CEMC)**  
**Former Texaco Casper Refinery**  
**Evansville, Wyoming 82636**

The former Texaco Refinery (Facility) is located approximately three miles east-northeast of the City of Casper, in unincorporated Natrona County, Wyoming. The Facility is currently principally vacant land which encompasses approximately 1400 acres; 1200 acres on the north side of the North Platte River (known as the North Property or NP), and 200 acres on the south side of the river (known as the South Property or SP). All of the former refinery processing units were located on the SP, with the exception of an additional tank farm, waste management areas (which include two RCRA regulated units) and impoundments for management of refinery waste water were on the NP.

### HISTORY

The former Texaco Refinery was constructed in the early 1920s by The Texas Company, whose name was later changed to Texaco. In 2001, Chevron Corporation and Texaco Inc. combined to form Chevron Texaco Corporation. In 2005, Chevron Texaco became Chevron Corporation. As part of the internal reorganization following that combination, Chevron Environmental Management Company (CEMC) became operator of the Facility. The refinery was operational from February 1923 until August 1982. The refinery processed crude oil from local sources into gasoline, diesel, and other motor fuels and had a rated capacity of 21,000 barrels per day when it closed. Asphalt and petroleum coke were also produced.

### REGULATORY MECHANISMS FOR FACILITY WIDE CORRECTIVE ACTION

The Facility is currently in Resource Conservation and Recovery Act (RCRA) interim status (RCRA ID# WYDO88677943) and is subject to two RCRA Administrative Orders on Consent (AOCs) issued by the WDEQ in 1996 (Administrative Order Docket No. 2758-96 and Administrative Order on Consent, Docket No. 2753-96). The AOCs were originally intended to govern site characterization, corrective action, submittal of work plans and reports, and implementation of interim measures to protect the North Platte River. However, since 2003, corrective action activities at the Facility are conducted under the Voluntary Remediation Program. In 2001, EPA Region 8 and the WDEQ entered into a Memorandum of Understanding for the VRP which establishes that the VRP is an acceptable alternative regulatory mechanism for RCRA sites in Wyoming.

On July 27, 2010, CEMC and the Wyoming Department of Environmental Quality (WDEQ) entered into a Remedy Agreement (RA) which provides the administrative and legal provisions necessary for Facility wide remedy implementation, as well as the overarching mechanisms for performance, oversight and enforcement.

### SITE CHARACTERIZATION

Prior to entry into the VRP, characterization of the Facility was completed under the RCRA Facility Investigation (RFI) process; the South Property and North Property RFI reports were approved in 2001. In March 2004, CEMC and the WDEQ signed a VRP Preliminary Remediation Agreement (PRA). The PRA required that CEMC conduct human health and ecological risk assessments, evaluate remedial alternatives, and submit remedy evaluation reports. CEMC and the WDEQ worked cooperatively to develop human health and ecological risk assessments (which were approved by the WDEQ in 2006 and 2007, respectively). A significant amount of additional data was collected from 2004 through 2006 to evaluate potential risks to humans and

ecological receptors on the SP and portions of the NP. The risk assessments were used in guiding remedy evaluations (which are described below). In addition, CEMC has compiled an extensive groundwater dataset for the South Property since the year 2000.

## INTERIM MEASURES

CEMC has implemented a number of interim measures to remove, remediate and control sources of contamination in soil and groundwater at the Facility and to protect the North Platte River. As a result of these interim actions, CEMC received notification from WDEQ in 2001 and 2002 that the Facility had achieved positive Environmental Indicator Determinations for groundwater migration and human health, respectively.

Hydrocarbon recovery efforts on the SP to protect water quality in the North Platte River were initiated in 1957. Groundwater remediation systems installed and operated since then have been based largely on various pump-and-treat technologies. These technologies have included open French drain trenches, subsurface French drain trenches, dense non-aqueous phase liquids (DNAPL) recovery trenches, several hydrocarbon recovery well designs, injection well/water flood systems, vacuum-based extraction systems, and a number of groundwater/hydrocarbon treatment and separation processes. Historically, CEMC has recovered approximately 17 million gallons of hydrocarbon from beneath the former refinery and has treated and removed contaminants from approximately 2 billion gallons of groundwater. Groundwater restoration efforts will continue over time, as described below (see Final Remedies section below).

Of particular interest and beginning in 1999, CEMC installed a Waterloo Barrier to further mitigate the potential for South Property contaminants to adversely affect surface water quality in the river. A Waterloo Barrier is a patented form of steel sheet piling with sealable joints. With an overall length of 3,400 feet and surface area of more than 87,000 square feet, the sealed-joint barrier wall at the South Property is one of the largest of its kind in the world.

In addition to hydrocarbon recovery interim measures, CEMC began decommissioning the former refinery in 1996. As part of that process, CEMC removed all inactive underground piping, concrete foundations and other subsurface structures that were associated with the operating plant. In addition, CEMC developed and implemented a program to identify, field screen and remove petroleum contaminated soils (PCS) in conjunction with the piping removal effort.

CEMC estimates that more than 210 miles of piping were removed from the subsurface, approximately 42,000 gallons of hydrocarbons were recovered from the piping, and approximately 100,000 tons of concrete were excavated, crushed and beneficially re-used on site. Following removal of piping and subsurface structures, open excavations and exposed piping corridors were visually inspected for the presence of petroleum-contaminated soils. Approximately 135,000 tons (90,000 cubic yards) of petroleum contaminated soils were excavated, removed and treated under this program. The final phase of the project included application of continuous-profiling electromagnetic (EM) geophysical surveys coupled with a global positioning system (GPS) to detect and map the positions of any buried objects composed of or containing metal (both ferrous and non-ferrous).

In addition to petroleum contaminated soils that were identified and removed during the refinery decommissioning activities, a total of more than 420,000 cubic yards of refining wastes and related petroleum contaminated soil, sediments, structures and debris were excavated and removed from the subsurface, resulting in elimination of 24 Solid Waste Management Units over the period from 1997 to 2005. The majority of these materials have been placed in a Corrective Action Management Unit (CAMU) located on the NP. The CAMU is an engineered landfill designed and constructed to safely contain wastes generated during environmental restoration activities at the former refinery.

## CAMU CLOSURE AND POST CLOSURE

In July of 2010, CEMC and WDEQ entered into the Regulated Unit RA, which provides the administrative and legal provisions necessary for post-closure of the regulated units on the NP, and closure and post-closure of the CAMU. The former hazardous waste regulated are located within the approved CAMU boundary area and are certified and verified closed. The CEP and a portion of the NLTA are overlain by the CAMU. The remaining portion of the NLTA (i.e., southeastern corner) is located adjacent to the CAMU within the designated CAMU area.

## EVALUATION OF REMEDIAL ALTERNATIVES

Before choosing a cleanup approach, a range of alternatives is typically analyzed in terms of each alternative's advantages and disadvantages relative to site-specific conditions determined through risk assessment (for soils remedies) and by evaluating data for other media, such as groundwater. In order to facilitate property reuse, CEMC and WDEQ agreed in June of 2007 that separate remedy evaluations would be developed for the SP and NP. These remedy evaluations, or Remedy Alternatives Evaluation and Recommendation (RAER) reports, are equivalent to RCRA Corrective Measures Studies. All areas of the SP have completed the RAER process and the current focus is the NP.

During development of the RAER's for the SP, groundwater was divided into Remedial Management Areas (RMAs) based on receptor protection, chemical longevity and light non-aqueous phase liquid (LNAPL) mobility, among other characteristics, as follows:

1. An area where more passive approaches were generally acceptable was designated as RMA-9 (approximately the southern half of the SP) which was the subject of RAER #1, as well as all SP soils. It is important to note that originally there were two RMAs designated as RMA 8 and RMA 10. Upon further data collection and analysis that was performed per VRP collaborative meetings in 2007, both RMA 8 and RMA 10 were incorporated into RMA 9. RAER #1 was approved by WDEQ on November 14, 2008.
2. Areas where more active remedial actions were needed for receptor protection or to address sources (e.g., reduce chemical longevity to cleanup level timeframes acceptable to WDEQ). These areas were referred to as the "core" of the groundwater plume, and designated as RMAs 1 through 7, which were the subject of RAER #2 (approved by WDEQ on August 10, 2012).
3. An area designated as RMA 12, which has no groundwater resource (in the northeast corner of the SP) and therefore will not require a groundwater remedy.
4. RMA 11 and RMA 13 comprise the eastern boundary and the southeast corner of the SP respectively, and were the subject of RAER #3. Unlike other portions of the SP, these areas may be affected by historic releases not related to the former Facility, potentially from one or more pipeline releases. The RMA 13 southeast corner may also have impacts related to the former refinery, but these are currently obscured by the other potential sources. RAER #3 was approved by WDEQ on August 22, 2013.

The NP remedy evaluation process focused first on an area on the western boundary of the CAMU known as the Upland Aquatic Area, or UA Area. During implementation of interim measures on the NP, approximately 1,360,000 CY of waste fill materials from a former landfill and former tank farm within the UA Area were removed and placed in the CAMU between 2002 and 2005. Removal of the landfill and subsequent excavations in the UA Area caused changes in the groundwater and surface water hydrology of the area, creating a groundwater seep and a new pond which was the focus of the UA RAER. On November 12, 2012, WDEQ approved the RAER for the UA Area.

Additional RAER's will be developed for the NP to address groundwater and portions of the NP with respect to soils, sediment and surface water (including the North Platte River but excluding portions of the NP which remain undisturbed and are in a natural condition). WDEQ and CEMC are currently developing RAER #4 which addresses NP groundwater.

## FINAL REMEDIES

The overarching RA includes requirements to develop several Remedial Action Plans (RAPs) associated with each WDEQ approved RAER for the Facility. The RA and RAPs also include a description of any engineering or institutional controls that are associated with the remedy, a schedule, provisions for modifying (reopening) or terminating the agreement, and other provisions necessary to support efficient and effective implementation of the remedy. Additional RAPs will be developed as the remaining NP RAERs are developed.

As of the fall of 2015, there have been four RAPs developed for the Facility, as follows:

1. RAP-1 addresses the media covered in RAER #1: South Property soils to 6 feet-below ground surface and groundwater generally in the southern half of the South Property. The effective date of RAP-1 is July 27, 2010, and the remedy selected to address dissolved phase contaminants in groundwater was Monitored Natural Attenuation (MNA). The selected remedy to address benzene in soil that may act as a source to groundwater was Soil Vapor Extraction (SVE). RAP-1 also required a delineation of the magnitude and extent of potential smear zone sources of benzene to groundwater at known points of contamination near the eastern boundary of RMA 9, as well as at known points of contamination within the central portion of RMA 9. RAP-1 also selected remedies for SP soils. These include engineering controls, such as a Risk Management Plan to protect human health and ecological receptors, as well as to safely manage contaminated soils during redevelopment activities. Active measures for soils in RAP-1 included earthwork and erosion control measures to prevent exposure to future commercial/industrial workers or ecological receptors to soils underneath current surface soils, and backfilling former impoundments to prevent exposure to contaminated groundwater. Finally, RAP-1 selected MNA to address benzene soil contamination in some areas. All RAP-1 remedies have been implemented, with the exception of the monitoring phase associated with MNA which will be implemented for at least the next 30 years.
2. RAP-2 identifies remedies for the "core" of the SP groundwater plume, generally in the northern portion of the SP (RMAs 1 - 7 as well as the remedies and/or monitoring of smear zone soil and LNAPL sources within RMAs 1 – 7). The remedy relies on a new hydraulic containment system as well as enhanced natural source depletion over time (groundwater flushing, volatilization, biodegradation, etc.). Additional source depletion was accomplished in the near term through excavation and ripping of soil source areas. Over the long term, the remedy relies on MNA as a polishing step. The effective date of RAP-2 is January 7, 2013. CEMC has developed and received approval for the various RAP-2 implementation work plans and is in the process of optimizing systems installed to date.
3. RAP-3 became effective on May 8, 2014, and specifies groundwater remedies for RMAs 11 and 13 (the eastern boundary and the southeast corner of the SP). MNA was selected as the remedy for tracking source depletion and boundary control within the interior of RMAs 11 and 13. The remedy selected for the eastern property boundary includes implementation of a field scale pilot test to assess the viability of passive air sparging. Lastly, RAP-3 included MNA in the southeast corner as well as future actions to be taken at such time that impacts unrelated to the SP no longer obscure any possible site-related impacts. CEMC has developed and received approval for all RAP-3 work plans and is currently in the implementation phase.
4. The UA RAP specifies remedies for surface water, daylighting groundwater (seeps) and soils for the UA Area on the NP and has an effective date of December 10, 2013. The remedy relies on a combination of MNA, natural restoration, and creation of a vegetative cover to

address soils contamination. For daylighting groundwater, the remedy specifies riprap to limit ecological receptor access/exposure as well as seasonal seep sampling. All UA remedies have been deployed and the remedy is in the monitoring phase.

### **INSTITUTIONAL CONTROLS AND PROPERTY RE-USE**

Use control areas, or UCAs, are allowed at sites where soil contamination above unrestricted use levels remains in place after cleanup, provided the site is participating in the VRP. UCAs require that use of the property be restricted over the long term through institutional controls to protect future users. CEMC developed a UCA petition that was submitted to Natrona County and the Town of Evansville. The petition was approved and the signed Resolution (Number 8308) was published by Natrona County on January 5, 2009. Ordinance #19-2008 was published by the Town of Evansville on November 24, 2008. The UCA was finalized and in place prior to execution of the 2010 RA between the WDEQ and CEMC. The UCA addresses restrictions for the Facility based on commercial/industrial reuse.

In 2009, the NP was redeveloped as a commercial wind farm owned and operated by Chevron Global Power. In 2012, CEMC sold approximately 130 acres of the SP to a third party who intends to develop the property as a commercial/light industrial complex. Approximately 17 acres of the SP were sold in 2014 to a pipeline company. CEMC remains the VRP Volunteer for the Facility and retains all the obligations specified under the RAs, RAPs and AOCs.

### **FOR MORE INFORMATION**

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